1N4001, 1N4002, 1N4003, 1N4004, 1N4005, 1N4006, 1N4007

1N4004 and 1N4007 are Preferred Devices

Axial Lead Standard Recovery Rectifiers

This data sheet provides information on subminiature size, axial lead mounted rectifiers for general−purpose low−power applications.

Features

- Shipped in plastic bags, 1000 per bag
- Available Tape and Reeled, 5000 per reel, by adding a “RL” suffix to the part number
- Available in Fan−Fold Packaging, 3000 per box, by adding a “FF” suffix to the part number
- Pb−Free Packages are Available

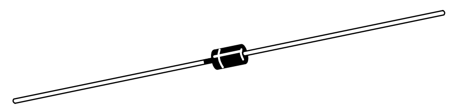
Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds, 1/16 in. from case
- Polarity: Cathode Indicated by Polarity Band

ON Semiconductor®

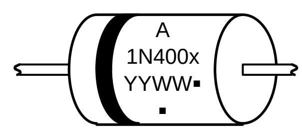
http://onsemi.com

LEAD MOUNTED RECTIFIERS
50−1000 VOLTS
DIFFUSED JUNCTION



CASE 59−10
AXIAL LEAD
PLASTIC

MARKING DIAGRAM



A = Assembly Location
1N400x = Device Number
x = 1, 2, 3, 4, 5, 6 or 7
YY = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

Preferred devices are recommended choices for future use and best overall value.

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

MAXIMUM RATINGS

Rating	Symbol	1N4001	1N4002	1N4003	1N4004	1N4005	1N4006	1N4007	Unit
†Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	200	400	600	800	1000	V
†Non−Repetitive Peak Reverse Voltage (halfwave, single phase, 60 Hz)	V_{RSM}	60	120	240	480	720	1000	1200	V
†RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
†Average Rectified Forward Current (single phase, resistive load, 60 Hz, T_A = 75°C)	I_O	1.0							A
†Non−Repetitive Peak Surge Current (surge applied at rated load conditions)	I_{FSM}	30 (for 1 cycle)							A
Operating and Storage Junction Temperature Range	T_J T_{stg}	−65 to +175							°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

ELECTRICAL CHARACTERISTICS†

Rating	Symbol	Typ	Max	Unit
Maximum Instantaneous Forward Voltage Drop, (i_F = 1.0 Amp, T_J = 25°C)	v_F	0.93	1.1	V
Maximum Full−Cycle Average Forward Voltage Drop, (I_O = 1.0 Amp, T_L = 75°C, 1 inch leads)	$V_{F(AV)}$	−	0.8	V
Maximum Reverse Current (rated DC voltage) (T_J = 25°C) (T_J = 100°C)	I_R	 0.05 1.0	 10 50	μA
Maximum Full−Cycle Average Reverse Current, (I_O = 1.0 Amp, T_L = 75°C, 1 inch leads)	$I_{R(AV)}$	−	30	μA

†Indicates JEDEC Registered Data

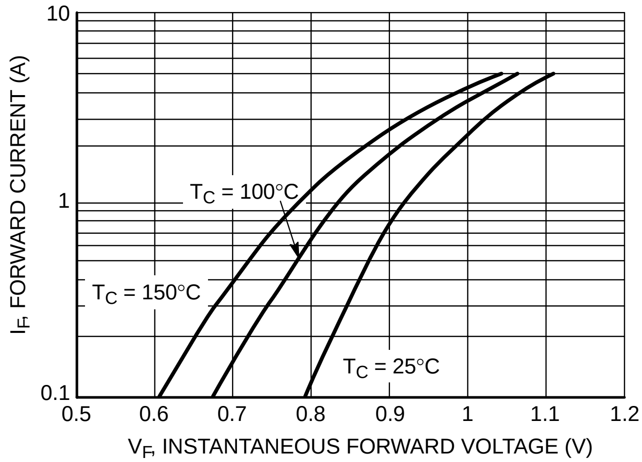


Figure 1. Typical Forward Voltage

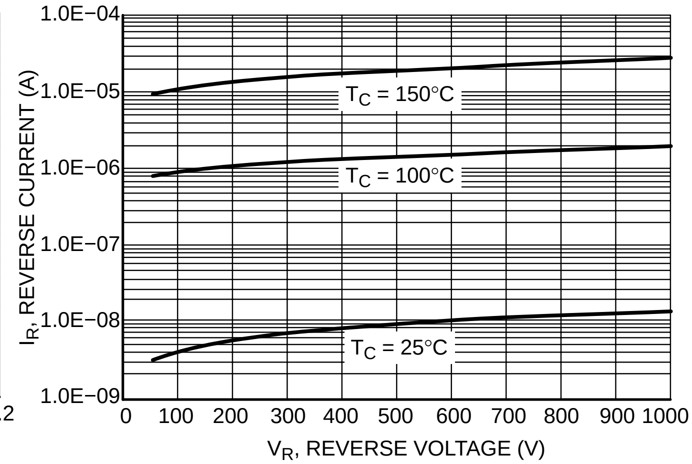


Figure 2. Typical Reverse Current

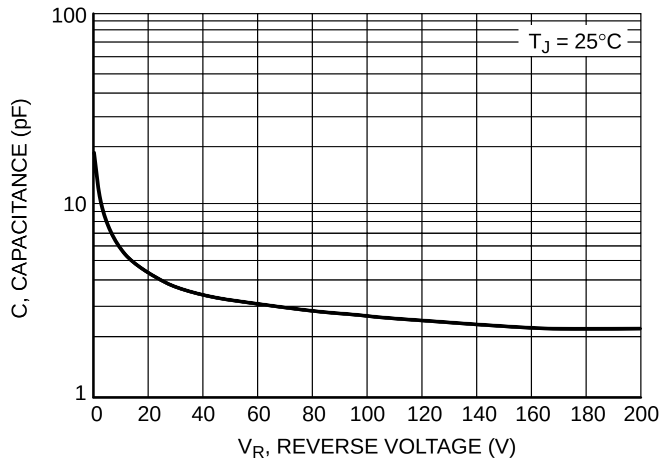


Figure 3. Typical Capacitance

ORDERING INFORMATION

Device	Package	Shipping†
1N4001	Axial Lead*	1000 Units/Bag
1N4001G	Axial Lead* (Pb−Free)	1000 Units/Bag
1N4001FF	Axial Lead*	3000 Units/Box
1N4001FFG	Axial Lead* (Pb−Free)	3000 Units/Box
1N4001RL	Axial Lead*	5000/Tape & Reel
1N4001RLG	Axial Lead* (Pb−Free)	5000/Tape & Reel
1N4002	Axial Lead*	1000 Units/Bag
1N4002G	Axial Lead* (Pb−Free)	1000 Units/Bag
1N4002FF	Axial Lead*	3000 Units/Box
1N4002FFG	Axial Lead* (Pb−Free)	3000 Units/Box
1N4002RL	Axial Lead*	5000/Tape & Reel
1N4002RLG	Axial Lead* (Pb−Free)	5000/Tape & Reel
1N4003	Axial Lead*	1000 Units/Bag
1N4003G	Axial Lead* (Pb−Free)	1000 Units/Bag
1N4003FF	Axial Lead*	3000 Units/Box
1N4003FFG	Axial Lead* (Pb−Free)	3000 Units/Box
1N4003RL	Axial Lead*	5000/Tape & Reel
1N4003RLG	Axial Lead* (Pb−Free)	5000/Tape & Reel
1N4004	Axial Lead*	1000 Units/Bag
1N4004G	Axial Lead* (Pb−Free)	1000 Units/Bag
1N4004FF	Axial Lead*	3000 Units/Box
1N4004FFG	Axial Lead* (Pb−Free)	3000 Units/Box
1N4004RL	Axial Lead*	5000/Tape & Reel
1N4004RLG	Axial Lead* (Pb−Free)	5000/Tape & Reel
1N4005	Axial Lead*	1000 Units/Bag
1N4005G	Axial Lead* (Pb−Free)	1000 Units/Bag
1N4005FF	Axial Lead*	3000 Units/Box
1N4005FFG	Axial Lead* (Pb−Free)	3000 Units/Box
1N4005RL	Axial Lead*	5000/Tape & Reel
1N4005RLG	Axial Lead* (Pb−Free)	5000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.
*This package is inherently Pb−Free.

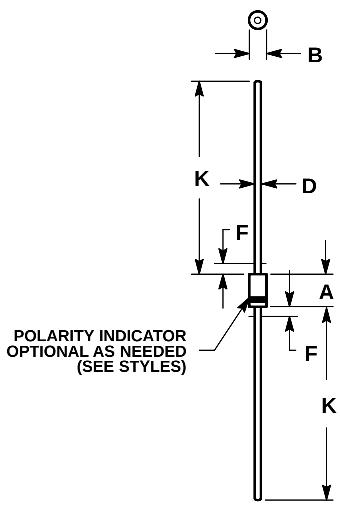
ORDERING INFORMATION

Device	Package	Shipping†
1N4006	Axial Lead*	1000 Units/Bag
1N4006G	Axial Lead* (Pb−Free)	1000 Units/Bag
1N4006FF	Axial Lead*	3000 Units/Box
1N4006FFG	Axial Lead* (Pb−Free)	3000 Units/Box
1N4006RL	Axial Lead*	5000/Tape & Reel
1N4006RLG	Axial Lead* (Pb−Free)	5000/Tape & Reel
1N4007	Axial Lead*	1000 Units/Bag
1N4007G	Axial Lead* (Pb−Free)	1000 Units/Bag
1N4007FF	Axial Lead*	3000 Units/Box
1N4007FFG	Axial Lead* (Pb−Free)	3000 Units/Box
1N4007RL	Axial Lead*	5000/Tape & Reel
1N4007RLG	Axial Lead* (Pb−Free)	5000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.
*This package is inherently Pb−Free.

PACKAGE DIMENSIONS

AXIAL LEAD
CASE 59−10
ISSUE U



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO−41 OUTLINE SHALL APPLY
4. POLARITY DENOTED BY CATHODE BAND.
5. LEAD DIAMETER NOT CONTROLLED WITHIN F DIMENSION.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.161	0.205	4.10	5.20
B	0.079	0.106	2.00	2.70
D	0.028	0.034	0.71	0.86
F	−−−	0.050	−−−	1.27
K	1.000	−−−	25.40	−−−

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
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For additional information, please contact your local Sales Representative.